



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

QM41/0510

HARNESSE DICKEY & PIERCE  
P O BOX 828  
BLOOMFIELD HILL MI 48303

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
09/052,569	03/31/98	012	ANDERSON, C	3761 05/10/99
First Named Applicant	ZHAO,	35 USC 154(b) term ext. = 0 Days.		

TITLE OF INVENTION APPARATUS AND METHOD FOR GENERATING PRESSURE CHANGES IN A MAMMALIAN ORAL/THROAT CAVITY

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
3	5203-000001	128-204,230	S87 UTILITY	YES	\$605.00	08/10/99

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.**

**THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.**

**HOW TO RESPOND TO THIS NOTICE:**

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or

B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay FEE DUE shown above, or

B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

PATENT AND TRADEMARK OFFICE COPY



UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
--------------------	-------------	-----------------------	---------------------

EXAMINER

ART UNIT

PAPER NUMBER

2

DATE MAILED:

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

NOTICE OF ALLOWABILITY

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☒ This communication is responsive to application filed 3/31/98

☒ The allowed claim(s) is/are 1-12

☒ The drawings filed on 3/31/98 are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR REPLY to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☐ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☐ including changes required by the Notice of Draftperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. \_\_\_\_\_

☐ including changes required by the proposed drawing correction filed on \_\_\_\_\_, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any reply to this notice should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 2

☒ Notice of Draftperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☒ Examiner's Statement of Reasons for Allowance

John G. Weiss  
Supervisory Patent Examiner  
Group 3700

Art Unit: 3735

*Allowable Subject Matter*

1. The following is an examiner's statement of reasons for allowance:

As to claim 1, the overall claim combination of a method for inducing pressure changes in a mouth and throat cavity of a mammal comprising the steps of:

monitoring a respiration pattern of the mammal to determine a first time period during which the mammal is inhaling and a second time period during which the mammal is exhaling;

inducing at least a partial vacuum in the mammal's mouth and throat during the first time period; and

removing the at least partial vacuum during the second time period, is neither anticipated or rendered obvious by the prior art.

As to claim 2, the overall claim combination of an apparatus for inducing pressure changes in a mouth and throat cavity of a mammal, the apparatus comprising:

a vacuum source having a controlled output;

an appliance in fluid communication with the controlled output of the vacuum source, the appliance adapted for placement in a mouth of a mammal so as to be in fluid communication therewith;

a sensor adapted to be coupled to a preselected portion of the mammal's anatomy and operative to generate a first signal whenever the mammal inhales and a second signal when the mammal exhales;

Art Unit: 3735

A controller having an output coupled to the controlled output of the vacuum source , and at least one input coupled for receipt of the first and second signals, the controller operative, upon receipt of the first signal, to cause the controlled output to pull at least a partial vacuum in the apparatus, and the controller operative, upon receipt of the second signal, to cause the controller output to cease pulling the at least partial vacuum, is neither anticipated or rendered obvious by the prior art.

As to claim 9, the overall claim combination of an apparatus for inducing pressure changes in a mouth and throat cavity of a mammal, the apparatus comprising:

- a regulated vacuum source having a controlled output;

- a fluid switch having first, second and third ports, the first port coupled in fluid communication with the controlled output, and the second port in fluid communication with ambient atmosphere;

- an apparatus in fluid communication with the third port of the fluid switch, the apparatus adapted for placement in a mouth of a mammal so as to be in fluid communication therewith; a sensor adapted to be coupled to a preselected portion of the mammal's anatomy and operative to generate a first signal whenever the mammal inhales and a second signal whenever the mammal exhales;

- a controller having an output coupled to the fluid switch and having at least one input coupled for receipt of the first and second signals, the controller operative, upon receipt of the first signal, to cause the fluid switch to fluidly couple the first port to the third port, and the controller operative, upon receipt of the second signal, to cause the fluid switch to fluidly couple the second

Art Unit: 3735

port to the third port, is neither anticipated or rendered obvious by the prior art.

As to claim 12, the overall claim combination of an apparatus for inducing pressure changes in a mouth and throat cavity of a mammal, the apparatus comprising:

a regulated vacuum source having a controlled vacuum output;

a regulated pressurized air source having a controlled pressurized air output;

an appliance in fluid communication with the third port of the fluid switch, the appliance adapted for placement in a mouth of a mammal so as to be in fluid communication therewith;

a sensor adapted to be coupled to a preselected portion of the mammal's anatomy and operative to generate a first signal whenever the mammal inhales and a second signal whenever the mammal exhales;

A controller having an output coupled to the fluid switch and having at least one input coupled for receipt of the first and second signals, the controller operative, upon receipt of the first signal, to cause the fluid switch to fluidly couple the first port of the third port, and the controller operative, upon receipt of the second signal, to cause the fluid switch to fluidly couple the second port to the third port, is neither anticipated or rendered obvious by the prior art.

Eriksson( 5,875,777) teaches a ventilator and method for controlling same to reproduce a manually generated breathing pattern.

Hakala( 5,873, 361) teaches a method of preventing the formation of a dangerous underpressure in a respiratory system.

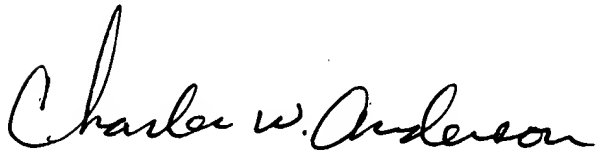
Rayburn(5, 800, 361) teaches a non- invasive estimation of arterial blood gases.

Art Unit: 3735

Rappoport et al. (5,803,066) teaches a method and apparatus for optimizing the continuous positive airway pressure for treating obstructive sleep apnea.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles W. Anderson whose telephone number is (703)- 305-3473.



Charles W. Anderson

May 7, 1999

John G. Weiss  
Supervisory Patent Examiner  
Group 3700